

IN THE CLAIMS

The following listing of claims below will replace all prior versions and listings of claims in the application:

Claims 1 to 17 (canceled).

Claim 18 (original): A particle composite comprising:

carrier particles having a mean diameter of less than 5 μm ;

a layer made of oxidic material having an irregular surface enveloping the carrier particles; and

particles made of an active material having a mean diameter of less than 1 μm applied to the irregular surface.

Claim 19 (original): The particle composite as recited in claim 18 wherein the carrier particles include carbon or oxidic carriers.

Claim 20 (original): The particle composite as recited in claim 19 wherein the carrier particles include thermal carbon blacks or flame carbon blacks.

Claim 21 (original): The particle composite as recited in claim 19 wherein the carrier particles include precipitated or pyrogenic silicic acids.

Claim 22 (original): The particle composite as recited in claim 18 wherein the layer made of oxidic material contains oxides of at least one of silicon, aluminum, alkaline earth elements, alkaline elements or combinations thereof derived through thermal decomposition of at least one precursor substance having silicon, aluminum, alkaline earth elements or alkaline elements containing at least one organic residue.

Claim 23 (original): The particle composite as recited in claim 22 wherein the at least one organic residue includes a silicon-organic compound.

Claim 24 (original): The particle composite as recited in claim 23 wherein the silicon-organic compound includes an alkyl silane, a fluoroalkyl silane, or an alkyl silicon chloride.

Claim 25 (original): The particle composite as recited in claim 18 wherein the active material includes a metal, metal alloy, semiconductor or compound thereof.

Claim 26 (original): The particle composite as recited in claim 25 wherein the active material includes a chalcogenide, nitride or carbide of metals.

Claim 27 (currently amended): The particle composite as recited in claim 26 25 wherein the ~~chalcogenide~~ active substance includes an oxide.

Claim 28 (original): The particle composite as recited in claim 27 wherein the oxide includes a zinc oxide.

Claim 29 (currently amended): The particle composite as recited in claim 25 wherein the metals or semiconductors are selected from a group ~~including~~ consisting of magnesium, calcium, barium, titanium, manganese, iron, copper, zinc, silver, gold, platinum, zirconium, yttrium, aluminum, silicon, and tin.

Claim 30 (original): The particle composite as recited in claim 18 wherein the carrier particles have a mean diameter of 0.1 μm to 1.0 μm (D_{50}), the particles made of active material have a mean diameter of 1 nm to 1000 nm (D_{50}), and a ratio of the mean diameter of the carrier particles to the mean diameter of the particles made of active material is less than 1:0.5.

Claim 31 (original): The particle composite as recited in claim 30 wherein the ratio is between 1:0.01 and 1:0.1.

Claim 32 (original): A method for producing a particle composite comprising the steps of:

i) producing a layer of a precursor substance having silicon, aluminum, alkaline earth elements, or alkaline elements, containing at least one organic residue, on carrier particles with a mean diameter of less than 5 μm ;

ii) thermally decomposing the precursor substance on the coated carrier particles to produce a layer enveloping the carrier particles made of oxidic material having an irregular surface; and

iii) applying particles made of an active material having a mean diameter of less than 1 μm to the irregular surface.

Claim 33 (currently amended): The method as recited in claim 32 wherein the particles of the active material are applied by applying precursors of the particles made of active material to the irregular surface and thermally decomposing ~~treating~~ the particle composite.

Claim 34 (original): The method as recited in claim 32 wherein step i) includes contact of the carrier particles with a solution or dispersion containing the precursor substance.

Claim 35 (original): The method as recited in claim 32 wherein step i) includes making a paste of the carrier particles with a solution or dispersion containing the precursor substance.

Claim 36 (original): The method as recited in claim 32 wherein step ii) includes selecting temperatures and treatment duration so a surface area of the enveloped carrier particle determined by a BET method has increased by at least 10% after the thermal decomposing.

Claim 37 (original): The method as recited in claim 36 wherein the surface area has increased by at least 25% after the thermal decomposing.

Claim 38 (original): The method as recited in claim 32 wherein step iii) includes contact of the coated carrier particles with a solution or dispersion containing particles made of active material or precursors of the particles.

Claim 39 (original): A method for producing particle composites comprising the steps of:

- i) producing a layer of a precursor substance having silicon, aluminum, alkaline earth elements, or alkaline elements, containing at least one organic residue, on carrier particles with a mean diameter of less than 5 μm ;
- v) applying active particles made of an active material having a mean diameter of less than 1 μm or precursors of the active particles to the surface of the carrier particles coated with the precursor substance, and
- vi) thermally decomposing the precursor substance on the coated carrier particles to produce a layer enveloping the carrier particles made of oxidic material having an irregular surface, and producing particles made of active material having a mean diameter of less than 1 μm from the precursors of the active particles.

Claim 40 (original): The method as recited in claim 39 wherein step i) includes contact of the carrier particles with a solution or dispersion containing the precursor substance.

Claim 41 (original): The method as recited in claim 39 wherein step i) includes making a paste of the carrier particles with a solution or dispersion containing the precursor substance.

Claim 42 (original): The method as recited in claim 39 wherein step vi) includes selecting temperatures and treatment duration so a surface area of the enveloped carrier particle determined by a BET method has increased by at least 10% after the thermal decomposing.

Claim 43 (original): The method as recited in claim 42 wherein the surface area has increased by at least 25% after the thermal decomposing.

Claim 44 (original): The method as recited in claim 39 wherein step v) includes contact of the coated carrier particles with a solution or dispersion containing particles made of active material or precursors of the active particles.

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Claim 45 (original): A filler or stabilizer in polymers comprising the particle composite as recited in claim 18.

Claim 46 (original): A catalyst for chemical reactions comprising the particle composite as recited in claim 18.

Claim 47 (original): The filler or stabilizer as recited in claim 45 wherein the polymer includes an elastomer and the active material includes zinc oxide.